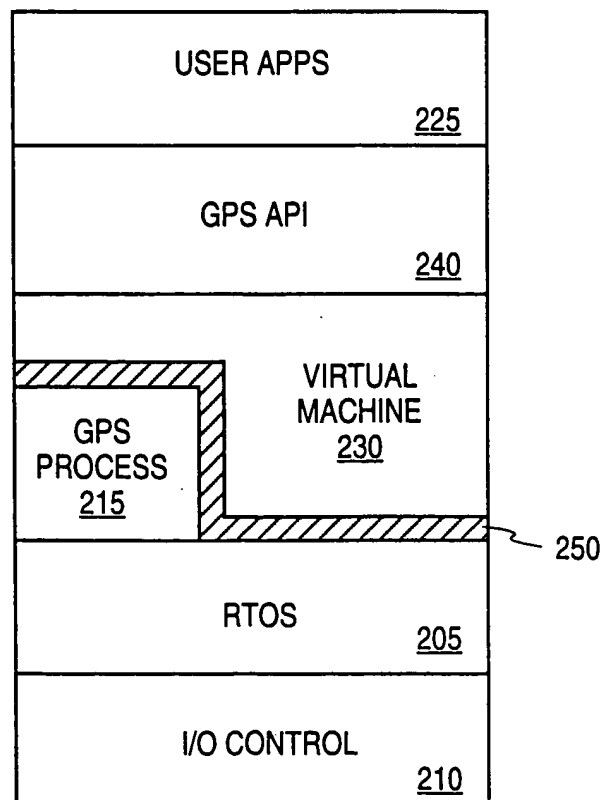
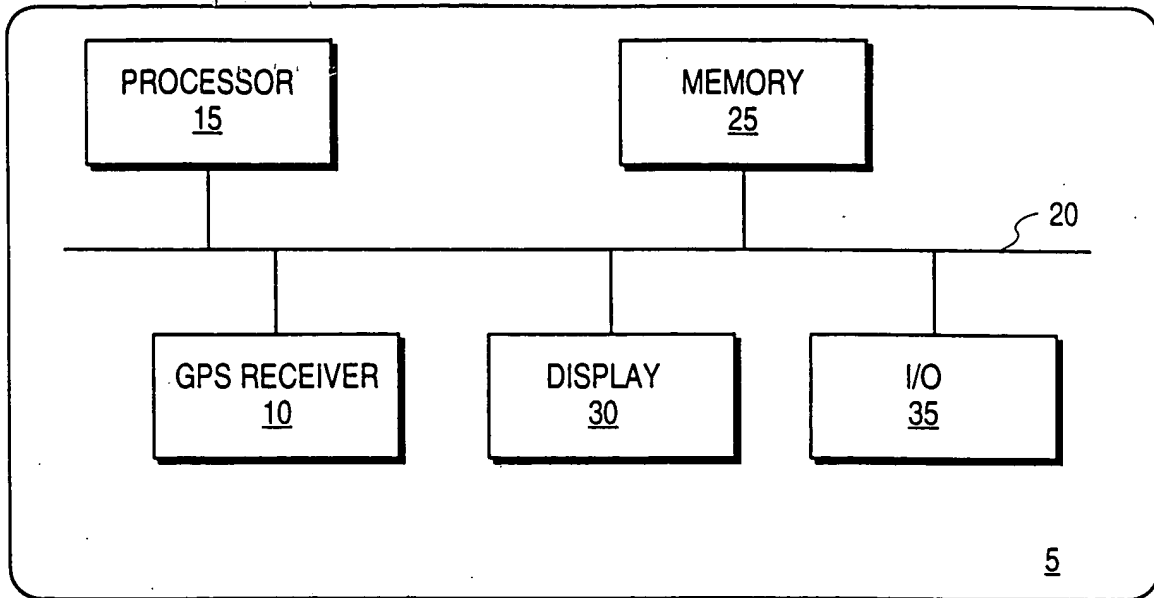


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d/12

13 Figs

13 Figs



CLASS GPS.ROUTEPOINT	
METHODS	
-getLat	public double getLat ()
-getLon	public double getLon ()
-getTime	public int getTime ()
-getRadius	public int getRadius ()
-getEarlyThreshold	public int getEarlyThreshold ()
-getLateThreshold	public int getLateThreshold ()
-getDistance	public double getDistance ()
-getIndex	public int getIndex ()
-setTime	
-setRadius	public void setRadius (int radius)
-setEarlyThreshold	public void setEarlyThreshold (int early)
-setLateThreshold	public void setLateThreshold (int late)
-setDistance	public void setDistance (double distance)

FIG. 3a

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CLASS GPS.ROUTEPOINT	
METHODS	
-setIndex	public void setIndex (int index)
-toString	public String toString () Overrides: toString in class Object

FIG. 3b

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CLASS GPS.GPSTIME	
VARIABLES	
-SECS_PER_WEEK	public static final int SECS_PER_WEEK
-SECS_PER_DAY	public static final int SECS_PER_DAY
-SECS_PER_HOUR	public static final int SECS_PER_HOUR
-SECS_PER_MINUTE	public static final int SECS_PER_MINUTE
-MINS_PER_HOUR	public static final int MINS_PER_HOUR
-HOURS_PER_DAY	public static final int HOURS_PER_DAY
-DAYS_PER_WEEK	public static final int DAYS_PER_WEEK

FIG. 4a

CLASS GPS.GPSTIME		
CONSTRUCTORS		
-GPSTime	public GPSTime ()	Constructs a GPSTime object with the current date and time
-GPSTime	public GPSTime (int yyyy, int m, int d)	Constructs a specific GPSTime given only the date Parameters: yyyy - year (full year, e.g., 1996, <i>not</i> starting from 1900) m - month (1-12) d - day (1-31) Throws: IllegalArgumentException if yyyy/m/d h:min:ss not a valid date/time
-GPSTime	public GPSTime (int yyyy, int m, int d, int h, int min, float s)	Constructs a specific GPSTime given a date & time Parameters: yyyy - year (full year, e.g., 1996, <i>not</i> starting from 1900) h - hour (range 0-23) min - minute (range 0-59) s - second (range 0-59.999...) Throws: IllegalArgumentException if yyyy/m/d h:ss:ss not a valid date/time

FIG. 4b

CLASS GPS.GPSTIME		
CONSTRUCTORS, cont.		
GPSTime	public GPSTime (short week_tag, float time_tag)	<p>Constructs a specific GPSTime given the GPS week/second tags. This method corrects for UTC leap seconds and performs GPS week rollover checking according to the current rollover threshold currently in effect</p> <p>Parameters:</p> <p>week_tag - GPS week number (range 0 to 1023)</p> <p>time_tag - Seconds into the GPS week (not adjusted for UTC)</p>

FIG. 4c

CLASS GPS.GPSTIME		
METHODS		
-advanceDay	public void advanceDay (int n)	Advance by n days. For example. d.advanceDay(30) adds thirty days to d Parameters: n - the number of days by which to change this (n can be < 0)
-advanceSecond	public void advanceSecond (float n)	Advance the time by n 'seconds'. For example. d.advanceSecond(30) adds thirty seconds to d Parameters: n - the number of seconds by which to change this day (can be < 0)
-getSecond	public float getSecond ()	Gets the second of the minute Returns: the second of the minute (range 0 to 59.999...)
-getMinute	public int getMinute ()	Gets the minute of the hour Returns: the minute of the hour (range 0 to 59)
-getHour	public int getHour ()	Gets the hour of the day Returns: the hour of the day (range 0 to 23)

FIG. 4d

CLASS GPS.GPSTIME	
METHODS cont.	
-getDay	<p>public int getDay ()</p> <p>Gets the day of the month</p> <p>Returns: the day of the month (range 0 to 31, month dependent)</p>
-getMonth	<p>public int getMonth ()</p> <p>Gets the month</p> <p>Returns: the month (range 1 to 12)</p>
-getYear	<p>public int getYear ()</p> <p>Gets the year</p> <p>Returns: the year (counting from 0, <i>not</i> 1900)</p>
-weekday	<p>public int weekday ()</p> <p>Gets the weekday</p> <p>Returns: the weekday (0 = Sunday, 1 = Monday, ..., 6 = Saturday)</p>
-daysBetween	<p>public int daysBetween (GPSTime b)</p> <p>The number of days between this and GPSTime parameter</p> <p>Parameters: b - any GPSTime</p> <p>Returns: the number of days between this and GPSTime parameter and b (> 0 if this day comes after b)</p>

FIG. 4e

CLASS GPS.GPSTIME		
METHODS cont.		
-secsBetween	public double secsBetween (GPSTime b)	<p>The number of seconds between this and GPSTime parameter</p> <p>Parameters: b - any GPSTime</p> <p>Returns: the number of seconds between this and GPSTime parameter and b (> 0 if this comes after b)</p>
-getWeek_tag	public short getWeek_tag ()	<p>Get the GPS week_tag</p> <p>Returns: the GPSweek_tag value (aliased to lie from 0 - 1023)</p>
-getTime_tag	public float getTime_tag ()	<p>Get the GPS time_tag</p> <p>Returns: the GPSTime_tag value (offset from UTC by GPS leap seconds)</p>
-convertGPSTimetag	public void convertGPStimetag (short week_tag, float time_tag)	<p>Set this GPSTime to the GPS week/seconds tags. This method corrects for UTC leap seconds and performs GPS week rollover according to the current rollover threshold currently in effect</p> <p>Parameters: week_tag - GPS week number (range 0 to 1023) time_tag - Seconds into the GPS week (not adjusted for UTC)</p>

FIG. 4f

CLASS GPS.GPSTIME		
METHODS cont.		
-toString	public String toString ()	<p>A string representation of the day</p> <p>Returns: a string representation of the GPS date and time</p> <p>Overrides: <u>toString</u> in class Object</p>
-DurationString	public static String DurationString (int dt)	<p>A string representation of a duration in seconds</p> <p>Parameters: dt - Delta time in seconds</p> <p>Returns: a string representation of the delta seconds parameter</p>
-toCalendar	public Calendar toCalendar ()	<p>Convert to Java Calendar object using the default Time zone and locale GPS seconds round to the nearest integer second</p>
-clone	public Object clone ()	<p>Makes a bitwise copy of a GPSTime object</p> <p>Returns: a bitwise copy of a GPSTime object</p> <p>Overrides: <u>clone</u> in class Object</p>
-main	public static void main (String args [])	

FIG. 4g

CLASS GPS.GPSFIX		
METHODS		
-clone	public Object clone ()	Makes a bitwise copy of a GpsFix object Returns: a bitwise copy of a SimFix object TBD: sub-objects must also support cloning and be explicitly cloned here. Overrides: clone in class Object.
-getDGPSflag	public boolean getDGPSflag ()	Get the Differential GPS status of the current fix. A TRUE value may be either 2D or 3D.
-GetLatitude	public double GetLatitude ()	Get the latitude in degrees referenced to WGS-84 Positive values indicate northern hemisphere. Negative values indicate southern hemisphere.
-GetLongitude	public double GetLongitude ()	Get the longitude in degrees referenced WGS-84 Negative values indicate western hemisphere. Positive values indicate eastern hemisphere.
-GetAltitudeMSL	public double GetAltitudeMSL ()	Get the altitude in meters above the geoid (mean sea-level)
-getAltitudeWGS84	public double getAltitudeWGS84 ()	Get the altitude in meters above the WGS-84 ellipsoid.
-getTimeTag	public float getTimeTag ()	Get the GPS time tag as seconds within the GPS week.

FIG. 5a

CLASS GPS.GPSFIX		
METHODS cont.		
-getWeekTag	public short getWeekTag ()	Get the GPS week tag (0-1023) from the GPS epoch. This epoch is nominally Jan 6, 1980, but can be adjusted accordingly within the GPSTime class.
-getTimeOfFix	public GPSTime getTimeOfFix ()	Return the UTC (leap-second corrected) time of current fix.
-AgeOfFix	public double AgeOfFix ()	Get the age of the current fix in seconds as compared to (GPS-corrected) system time.
-TimeSincePreviousFix	public float TimeSincePreviousFix (GpsFix prefix)	Return the number of seconds between this fix and the specified (prior) fix.
-GetSpeed	public float GetSpeed ()	Return the horizontal speed in meters per second.
-GetHeading	public float GetHeading ()	Return the current "course" in degrees clockwise from the true north.
-GetVspeed	public float GetVspeed ()	Return the vertical speed in meters per second.
-equals	public boolean equals (GpsFix f)	Return true if fixes are equal.
-print	public void print (String s)	
-print	public void print ()	

FIG. 5b